Factory Mutual System

Allendale Insurance

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January 27, 1997

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Re: DYGERT SEATING - Preliminary Evaluation
Dygert Seating, Elkhart IN
Goshen Cushion, Watkinsville GA

Dear Carl,

It was a pleasure to meet with you, Ron and Tim on January 8, 1997 at the Elkhart IN facility. Thank you for giving me the opportunity to tour this facility to gather preliminary "property loss prevention" information

We are pleased to offer our engineering information and advice. I have separated my preliminary findings into two major sections for this report, Elkhart IN and Watkinsville GA.

LOCATION No. 1: DYGERT SEATING - ELKHART, IN

Construction:

This facility is comprised of two buildings, the Main Building and Metal-Working Building, with an approximate total square footage of 100,000 sq. ft.. Both buildings appear to have standing-seam roofs. Evaluation of the collapse potential could not be made due to insulation covering the underside of the roof deck, and access to the roof top was not easily accessible.

The Main Building is shaped in an "L" configuration and construction is non-combustible. The Main Building is approximately 77,000 sq. ft. The eaves are 18 feet high with 21 foot centers. The building was manufactured in three sections. The first section is 30,000 sq. ft. and was built in 1983; the second section is 33,000 sq. ft. and was built in 1985; the third section is 14,000 sq. ft. and was built in 1994.

The Metal-Working Building is 23,000 sq. ft. and located about 300 feet north of the Main Building. The eaves also appear to be 18 ft. high with 21 ft. centers. The construction date is presumed to be the 1970's.

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LOCATION No. 1: DYGERT SEATING - ELKHART, IN (continued)

Occupancy:

The Main Building is broken down into six areas as follows: offices, cutting & sewing area-1, upholstery with plastic foam, cutting & sewing area-2, fabric storage, and shipping.

Raw materials are received on a just-in-time schedule. Finished orders are staged and promptly shipped. There is no large storage area for finished product. Foam is received just-in-time from the foam manufacturer, which is located 500 feet north and in a separate facility. Foam is staged in the "upholstery with/plastic foam" 100 sq. ft. area to an average height of 6 feet.

Fabric storage consists of about 3,000 sq. ft. and is stored in single and double-row rack arrangements. The woven and non-woven fabrics are palletized and placed on solid shelves with 4 levels of storage. The maximum storage height is 12-13 ft. of rolls of material 2-high, laying on their sides at each level.

The Main Building is heated by 80,000 Btu and 108,000 Btu roof-mounted gas-fired units. Combustion controls could not be reviewed.

The main operation is to assemble bucket seats and bench seats which are used in conversion vans. This is an assembly process where material and foam are attached to the hardware frames for the seats. The main material-cutting area uses a cutting table and equipment, similar to the Flexsteel Dubuque operation. There are independent sewing machine stations where operators sew fabric and material together.

The Metal-Working Building consists primarily of 17 individuallzed welding stations along the western perimeter wall, and 4 isolated welding stations along the north wall. The center floor area consists of one double-row rack of metal parts in cardboard boxes or wooden crates on pallets to a height of 13 feet. There are several small pipe-bending machines and small presses. All of the welding stations are fed by a continuous loop of argon gas. The main argon tank is surrounded by fencing at the exterior of the east wall. The maximum weight of the argon tank with contents is 16,962 pounds, rated at a maximum pressure of 250 psi at 100°F. The individual welding stations are Miller CP300 units, which are constant voltage DC arc-welding power units. There is an approximate 2,000 sq. ft. 2-story office in the northeast corner of the building. There is also a 2,000 sq. ft. maintenance area in the southeast corner.

Operations run one shift per day, 5 days a week.

LOCATION No. 1: DYCERT SEATING - ELKHART, IN (continued)

Protection:

The Main Building is provided with automatic sprinkler protection. The system is fed by an 8-inch feed main which reduces to a 6-inch main. There are two 6-inch OS&Y valves, one 6-inch butterfly riser valve and one 3-inch butterfly riser valve. All valves were noted to be in the open position. The 6-inch OS&Y valves were locked in the open position; the two butterfly valves were not locked. These valves should be locked in the open position. There are no valve tamper switches.

All of the Main Building's fire protection systems are hydraulically-designed wet systems. The offices are rated at 0.1 gpm over 1500 sq. ft.; the cutting/sewing fabric area-1 is rated at 0.19 gpm over 1500 sq. ft.; the upholstery/plastic foam area is rated at 0.29 gpm over 2000 sq. ft.; the cutting/sewing area-2 is rated at 0.19 gpm over 1500 sq. ft.. Due to the large overhead bulk feed main and limited quantity of "just in time" foam, the protection seems to be adequate. This should be evaluated further by Factory Mutual Engineering.

The top row of fabric storage should be removed so that the maximum storage height is 10 feet. This requires a density of 0.3 gpm/2000 sq. ft. The system is hydraulically designed at 0.29 gpm/2000 sq. ft. (at the most remote demand area). The double-row rack storage is not in the most remote area, and is near a feed main. Protection should be adequate at 10 feet, maximum height; however, the solid shelves should be removed and the rolls placed on their sides on pallets.

The Metal-Working Building is fully sprinklered with an 8-inch feed-main which reduces to a 6-inch riser. There are two 6-inch butterfly valves which were found in the open position, but not locked. These valves should be locked. No information was readily available pertaining to this sprinkler system. Due to the present occupancy, the existing system should provide adequate protection. This should be evaluated by Factory Mutual Engineering.

Flow-test information in 1994, from a hydrant near this location on Marina Drive, indicated a 56 psi static and 51 psi residual, with a waterflow of 1940 gpm. There appears to be a good flat water supply at this location.

The automatic sprinkler waterflow alarms are monitored by a central station.

Exposure:

Exterior - A foam manufacturing building is located about 500 ft. North of the Main Building, and 300 ft. East of the Metal-Working Building.

Inherent - There are no inherent exposures. There are no high hazards or significant amounts of flammable liquids or flammable paints being used.

LOCATION No. 1: DYCERT SEATING - ELKHART, IN (continued)

Exposure: (cont)

Flood - This facility is located in flood zone C, which is an area greater than the 500-year flood plain, and considered to be minimal exposure.

Collapse - This needs to be evaluated further. There are no differences in roof elevations. This appears to be a standing seam roof which may require reinforcement.

Windstorm - This exposure should be low.

B&M:

There does not appear to be significant B&M exposures at the Elkhart, IN location.

Human Element Recommendations:

There are no formal programs at this facility. The following programs should be implemented as soon as possible.

1. PEO (Plant Emergency Organization) - This should be a formal and recorded program; training should occur on a regular basis.
2. Loss Prevention Inspection Program - This should be a formal and recorded program and follow the FM guidelines.
3. FM Hot Work permit system
4. FM Red Tag program
5. FM Managing Change

Physical Protection Recommendations:

- Further evaluation and information needs to be obtained from the building manufacturer to explore the potential for collapse.
- Remove the top row of fabric storage to limit storage to 10 ft. high. In addition, the solid shelves should be removed.

General Comments:

Based on the preliminary inspection of the above referenced location and the completion of the above mentioned advice should allow this location to be classified as HPR. A complete and formal loss prevention inspection needs to be completed by our field engineering division - Factory Mutual Engineering.

LOCATION NO. 2: GOSHEN CUSHION - WATKINSVILLE, GA

The following preliminary information was obtained from a telephone discussion with Mr. Jamie Wilkes at the Watkinsville, GA facility.

Construction:

This is a 60,000 sq. ft. building comprised of three sections, each 20,000 sq. ft. The first part was constructed in late 1940's with concrete block walls and lightweight concrete and metal roof; the second part was manufactured in the late '60's and also consists of concrete block walls with lightweight concrete and metal roof. The third section was built approximately in 1977 and consists of steel on steel frame construction. There are 14 skylights in the section over the sewing machine area. The building has 18 foot high eaves and 21 foot centers.

Occupancy:

This building is rented from Brewster Properties, and resides on 13 acres of land. All raw materials are processed in a just-in-time fashion, and all finished seats are shipped out promptly. Foam for the seats is obtained from the same supplier as used by Elkhart and, coincidentally, has a location nearby. There are double-row steel racks for woven and non-woven fabric storage to 13 feet high.

Protection:

This facility is provided with 100% automatic sprinkler protection. No additional information was available. Adequacy and demand requirements should be evaluated during the Factory Mutual Engineering inspection. Specific areas involving foam staging and fabric storage need further evaluation.

Supply is a 6-inch feed main, fed from the public. There are 4 fire hoses in the shipping area. The fire department is volunteer, located 1-1/2 miles away. Water flow alarms are monitored by a central station which is called Computer Alarm. No information on the sprinkler system was readily available.

Exposure:

This facility is located in an flood zone designated as X-unshaded, which is an area outside the 500-year flood plain with minimal exposure. The land is natural, not filled, and the grade slopes slightly away from the building. There are no adjacent bodies of water, no nearby brook, ditch or river, no prior flood or sewer back-up. This facility is protected by a burglar alarm system, with contacts on all openings, supervised by a central station. There is exterior lighting, and perimeter surveillance is completed each night by the local police force. There does not appear to be significant B&M exposures. The nearest building is a decorative stone retail store, located 500 feet north of this facility.

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LOCATION NO. 2: GOSHEN CUSHION - WATKINSVILLE, GA (continued)

Human Element Recommendations:

Formal FM programs need to be implemented with regularly scheduled training. The programs are as follows:

1. PEO (Plant Emergency Organization)
2. FM Loss Prevention Inspection Program
3. FM Hot Work Permit system
4. FM Red Tag program
5. FM Managing Change

Physical Protection Recommendations:

- Obtain information on automatic sprinkler systems to determine the design densities per remote area. Determine sprinkler protection adequacy for storage areas, example: foam and fabric.

- Evaluate housekeeping procedures.

General Comments:

Based on the preliminary information and completion of the above recommendations, this facility has the potential to be an HPR location. Further evaluation can be completed during a Factory Mutual Engineering inspection.

We wish you the best on your business decision. If you need additional information or assistance, please let me know. Thank you once again for your excellent interest in loss prevention.

Very truly yours,

Peter A. Young

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